We claim:

1.-27. (Canceled)

28. (Currently amended) A tubular structure comprising:

a hollowed tubular structure having an aspect ratio of about 3 or more and comprising ~~an~~a first interior surface,;

~~said~~the first interior surface comprising an interior coating formed thereon, said interior coating defining a second interior surface of the tubular structure, said interior coating comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating comprising a thickness of about 5 micrometers or more, wherein said amorphous carbon coating comprises a hydrogen concentration of about 32 %.

29.-31. (Canceled).

32. (Currently amended) The tubular structure of claim 28 wherein said amorphous carbon coating comprises a thickness of about 15 micrometers or more.

33.-34. (Canceled).

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35 ~~36~~. (Currently amended) The tubular structure of claim [[~~28~~]]32 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

36. (Currently amended) The tubular structure of claim 28 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

37. (Canceled).

38. (Currently amended) The tubular structure of claim 28 wherein said amorphous carbon coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

39. (Currently amended) The tubular structure of claim [[~~28~~]]36 wherein said amorphous carbon coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

40. (Currently amended) The tubular structure of claim 32 wherein said amorphous carbon coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

41.-44. (Canceled).

45. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 2 micrometers or more, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide;

silicon cohesively bonded to said metal-silicide;

carbon chemically bonded to said silicon, forming silicon-carbide; and

carbon cohesively bonded to said silicon-carbide forming said substantially uniform amorphous carbon coating.

46.-47. (Canceled).

48. (Previously presented) The tubular structure of claim 45 wherein said coating has a thickness of about 5 micrometers or more.

49. (Previously presented) The tubular structure of claim 45 wherein said coating has a thickness of about 15 micrometers or more.

50. (Canceled).

51. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a coating thickness of about 2 micrometers or more and comprising a uniformity of about +/- 20% or less along its length, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide;

silicon cohesively bonded to said metal-silicide;

carbon chemically bonded to said silicon, forming silicon-carbide; and

carbon cohesively bonded to said silicon-carbide forming said substantially uniform amorphous carbon coating.

52. (Previously presented) The tubular structure of claim 48 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

53. (Previously presented) The tubular structure of claim 49 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

54. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 0.5 micrometers or more and comprising a nanohardness of about 15 GPa measured using a nano-indentation hardness tester, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide;

silicon cohesively bonded to said metal-silicide;

carbon chemically bonded to said silicon, forming silicon-carbide; and

carbon cohesively bonded to said silicon-carbide forming said substantially uniform amorphous carbon coating.

55. (Canceled).

56. (Previously presented) The tubular structure of claim 51 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

57. (Previously presented) The tubular structure of claim45 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

58.-59. (Canceled).

60. (Previously presented) The tubular structure of claim 45 wherein said coating comprises a hydrogen concentration of about 32 %.

61. (Previously presented) The tubular structure of claim 54 wherein said coating comprises a hydrogen concentration of about 32 %.

62. (Canceled).

63. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 2 micrometers or more, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

germanium chemically bonded to said metal, forming a metal-germanide;

germanium cohesively bonded to said metal-germanide;

carbon chemically bonded to said germanium, forming germanium -carbide; and

carbon cohesively bonded to said germanium -carbide forming said substantially uniform amorphous carbon coating.

64.-65. (Canceled)

66. (Previously presented) The tubular structure of claim 63 wherein said amorphous carbon coating has a thickness of about 5 micrometers or more.

67. (Previously presented) The tubular structure of claim 63 wherein said amorphous carbon coating has a thickness of about 15 micrometers or more.

68.-72. (Canceled).

73. (Previously presented) The tubular structure of claim 45 wherein a gaseous precursor to said gaseous deposition product comprises a diffusion pump fluid selected from the group consisting of polyphenyl ether; elcosyl naphthalene; *i*-diamyl phthalate; *i*-diamyl sebacate; chlorinated hydrocarbons; *n*-dibutyl phthalate; *n*-dibutyl sebacate; 2-ethyl hexyl sebacate; 2-ethyl hexyl phthalate; di-2-ethyl-hexyl sebacate; tri-*m*-cresyl phosphate; tri-*p*-cresyl phosphate; and o-dibenzyl sebacate.

74.-77. (Canceled).

78.-84. (Canceled).

85. (Previously presented) The tubular structure of claim 45 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

86. (Previously presented) The tubular structure of claim 54 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

87. (Previously presented) The tubular structure of claim 56 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

88. (Previously presented) The tubular structure of claim 57 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

89. (Previously presented) The tubular structure of claim 85 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

90. (Previously presented) The tubular structure of claim 86 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

91. (Previously presented) The tubular structure of claim 87 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

92. (Previously presented) The tubular structure of claim 88 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

93.-108 (Canceled).